

Appl. No. 10/748,734  
Amdt. Dated October 17, 2007  
Reply to Office Action of July 18, 2007

Attorney Docket No. 88519.0001  
Customer No.: 26021

### **REMARKS**

This application has been carefully reviewed in light of the Office Action dated July 18, 2007. Claims 4-6, 8-11, 13-15, and 17-19, and 26 remain in this application. Claims 4, 5, 13, and 14 are the independent Claims. Claims 4, 5, 13, and 14 have been amended. New Claim 26 has been added. It is believed that no new matter is involved in the amendments or arguments presented herein. Reconsideration and entrance of the amendment in the application are respectfully requested.

#### **Non-Art Based Rejections**

Claims 4-6 and 8-11 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims 4-6 and 8-11 were rejected under 35 U.S.C § 112, second paragraph, for indefiniteness. In response, Applicant has amended Claims 4 and 5 to address the concerns expressed in the Office Action. Reconsideration and withdrawal of the above § 112 rejections are respectfully requested.

#### **Art-Based Rejections**

Claims 4, 6, 10, 11, 13-15 and 19 were rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent Publication No. 2002/0126719 (Kadota) in view of International Publication No. WO 02/89223 (Ishizaki); Claims 8, 9, 17 and 18 were rejected as obvious over Kadota and Ishizaki in view of U.S. Patent No. 6,787,435 (Gibb). Applicant respectfully traverses the rejections and submits that the claims herein are patentable in light of the clarifying amendments above and the arguments below.

**The Kadota Reference**

Kadota is directed to a semiconductor photonic device having GaN-based compound semiconductor layer as an active buffer layer (*See Kadota; Paragraph [0002]*).

**The Ishizaki Reference**

Ishizaki is directed to a method of fabricating a light emitting device having a light emitting layer portion which includes  $\text{Mg}_x\text{Zn}_{1-x}\text{O}$  layer (*see Ishizaki; Paragraph [0015]*).

**The Gibb Reference**

Gibb is directed to a light-emitting element. A light emitting diode (LED) includes a sapphire substrate 26 and a plurality of semiconductor layer 28, 30, 32 deposited on a front side 33 of the sapphire substrate 26 (*See Gibb; Abstract*).

**The Claims are Patentable Over the Cited References**

The present application is generally directed to light emitting devices having transparent electrodes that inhibit degradation.

As defined by amended independent Claim 4, an electrode structure includes a transparent electrode including ZnO. An Mg-doped ZnO film is disposed on a light emission side of an outer surface of the electrode that is opposite to a substrate of a semiconductor device. The electrode is a component of the semiconductor device.

The applied references do not disclose or suggest the features of the present invention as recited in independent Claim 4. In particular, the applied references do not disclose or suggest, "an Mg-doped ZnO film disposed on a light emission side

of an outer surface of the electrode that is opposite to a substrate of a semiconductor device,” as recited in amended independent Claim 4.

Ishizaka discloses a lattice constant of Mg doped ZnO located between a lattice constant of a Sapphire substrate and a lattice constant of a ZnO layer. Therefore, the Mg doped ZnO in Ishizaki functions as a buffer layer. The Examiner asserts that in the combination of Ishizaki and Kadota, Mg doped ZnO can be provided on a substrate side of the ZnO layer, opposite the light emission side.

In contrast, the present invention requires an Mg-doped ZnO film to be disposed on a light emission side of an outer surface of the electrode that is opposite to a substrate of a semiconductor device. The Mg doped ZnO layer asserted by the Examiner is provided on the opposite side to that of the present invention. The Mg-doped ZnO film provided in this manner prevents degradation due to penetration of ion-containing moisture and increases acid resistance (*See Specification; Page 3, lines 2-18*). Kadota and Ishizaki do not disclose or suggest these features alone or in combination.

Moreover, on page 12 of the Office Action, the term “substrate” is asserted to be given its “broadest possible interpretation.” Applicant strongly disagrees with this reasoning and submits that the claims must be given their “broadest reasonable interpretation,” as it would be interpreted by one of ordinary skill in the art (*See M.P.E.P. § 2111*). Furthermore, the broadest reasonable interpretation “must also be consistent with the interpretation that those skilled in the art would reach.” Therefore, an expansion of the meaning of a term without proper context is impermissible.

As submitted in the previous amendment dated June 11, 2007, the term substrate is defined in electronics as, “a supporting material on which a circuit is formed or fabricated.” Applicant submits that one of ordinary skill in the art would

not reasonably look to the etymology of substrate to ascertain its meaning since the broad meaning of substratum would cause confusion and be inconsistent with the well understood meaning of an electronic substrate.

Thus, Kadota does not disclose or suggest these features of the present invention as required by amended independent Claim 4. The ancillary references do not remedy the deficiencies of Kadota.

Since the applied references fail to disclose, teach or suggest the above features recited in amended independent Claim 4, those references cannot be said to anticipate nor render obvious the invention which is the subject matter of that claim.

Accordingly, amended independent Claim 4 is believed to be in condition for allowance and such allowance is respectfully requested.

Applicant respectfully submits that amended independent Claims 5, 13 and 14 are allowable for at least the same reasons as discussed above with reference to amended independent Claim 4 and such allowance is respectfully requested.

The remaining claims depend either directly or indirectly from amended independent Claims 4, 5, 13 and 14 and recite additional features of the invention which are neither disclosed nor fairly suggested by the applied references and are therefore also believed to be in condition for allowance. For example, with respect to new dependent Claim 26, it is noted that those claims require, "the semiconductor layer is formed on the substrate that is different from the semiconductor layer." Kadota merely teaches layers 44-48 formed on each other and not on a substrate that is not one of the layers 44-48. Thus, this requirement is nowhere taught or suggested by Kadota, and further distinguishes the present application over Kadota.

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**Conclusion**

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4721 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,  
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Date: October 17, 2007

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